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A HISTORY

OF

American Manufactures

FROM

1608 to 1860:

EXHIBITING

THE ORIGIN AND GROWTH OF THE PRINCIPAL MECHANIC ARTS AND
MANUFACTURES, FROM THE EARLIEST COLONIAL PERIOD
TO THE ADOPTION OF THE CONSTITUTION;

AND COMPRISING

ANNALS OF THE INDUSTRY OF THE UNITED STATES IN MACHINERY,
MANUFACTURES AND USEFUL ARTS,

WITH A NOTICE OF

The Important Inventions, Tariffs, and the Results of each Decennial Census.

By J. LEANDER BISHOP, A.M., M.D.

WITH AN APPENDIX, CONTAINING

STATISTICS OF THE PRINCIPAL MANUFACTURING CENTRES, AND DESCRIPTIONS
OF REMARKABLE MANUFACTORIES AT THE PRESENT TIME.

IN THREE VOLUMES.

VOL. III.

THIRD EDITION, REVISED AND ENLARGED.

PHILADELPHIA:

EDWARD YOUNG & CO.,

No. 144 SOUTH SIXTH STREET.

LONDON:

SAMSON LOW, SON & CO., 47 LUDGATE HILL.

1868.

MANUFACTURES OF BUFFALO.

BUFFALO, situated at the eastern extremity of Lake Erie, and the terminus of the Erie Canal, has long been a principal commercial emporium of the West. Her citizens performed prodigies of labor at an early period, when the town contained not more than 2,000 inhabitants, to render the harbor available to the largest vessels and secure the termination of the Erie Canal; and at a later period they erected, at a heavy cost, immense elevators, to facilitate the rapid discharge of cargoes, especially of grain. There are now in the city of Buffalo twenty-one of these automatic laborers, that have in the aggregate the power of transferring 82,000 bushels of grain per hour, and a warehouse capacity of 4,415,000 bushels. By the promptitude with which they clear vessels, fleets have been enabled to leave the harbor in search of other freight within thirty-six hours after their arrival—a dispatch gratifying to the mariner, profitable to the owner, and highly reputable to the port.

During the last fifteen or twenty years the citizens of Buffalo have been not less indefatigable in establishing and encouraging the growth of manufactures, and with a success not less marked than that which attended their efforts to attract to their port the immense agricultural productions of the West. According to the Census Returns, furnished us in advance of their official publication, Erie County, of which Buffalo is the capital, had, in 1860, 791 manufacturing establishments, with a capital of \$5,524,871, that yielded a value of \$10,777,750. According to the same authority the city contained 404 manufactories, that had a capital invested of \$4,617,743; employed 5,217 male and 380 female hands, and produced a value of \$8,500,000. This, however, it may be safely asserted, is considerably below the present product. The census officials in Buffalo were not more successful than those in other places in securing accurate returns, as can easily be proved—besides, business was depressed below the average in 1860, and since then there have been important additions to the number of its manufactories. It is probable, therefore, that the estimate of competent judges, who state that the annual value of articles now manufactured in Buffalo is at least twelve millions of dollars, is not an unreasonable one.

The principal manufactures of Erie County, according to the census returns, were the following :

Manufactures.	No. of Establishments.	Capital.	Raw material.	Male hands.	Female hands.	Value of Product.
Agricultural implements.....	6.....	\$290,400.....	\$124,290.....	277.....	.....	\$377,800
Brass founding.....	2.....	11,000.....	4,030.....	17.....	.....	15,500
Brooms.....	1.....	4,000.....	8,000.....	8.....	.....	18,000
Blank books and book binding.....	3.....	19,500.....	23,400.....	23.....	28.....	51,000
Boots and shoes.....	89.....	89,560.....	92,264.....	365.....	31.....	226,019
Clothing.....	35.....	130,350.....	201,231.....	313.....	173.....	366,952
Cigars.....	11.....	41,050.....	38,695.....	71.....	2.....	85,790
Carriages.....	43.....	126,166.....	46,582.....	209.....	.....	199,330
Cabinet furniture.....	22.....	102,700.....	44,827.....	150.....	.....	132,717
Car wheels.....	1.....	2,600.....	28,400.....	20.....	.....	51,550
Distilled liquors.....	3.....	200,000.....	580,516.....	60.....	.....	795,456
Edge tools.....	1.....	25,000.....	11,500.....	43.....	.....	41,000
Flour and meal.....	36.....	435,025.....	1,572,291.....	133.....	.....	1,787,920
Glass ware.....	1.....	10,000.....	9,250.....	60.....	.....	40,500
Hats and caps.....	11.....	50,700.....	44,887.....	26.....	12.....	72,356
Iron (rolled).....	1.....	53,000.....	158,000.....	230.....	.....	250,000
Iron railing.....	4.....	48,800.....	17,290.....	28.....	.....	43,000
Iron forging.....	1.....	50,000.....	29,120.....	12.....	.....	35,000
Iron founding.....	9.....	133,300.....	119,236.....	272.....	.....	265,905
Leather.....	40.....	673,360.....	868,918.....	422.....	.....	1,622,166
Lumber (planed).....	5.....	110,900.....	85,525.....	113.....	.....	136,103
Lumber (sawed).....	80.....	138,525.....	71,191.....	181.....	.....	195,225
Malt liquors.....	33.....	168,600.....	181,324.....	137.....	.....	399,226
Malt.....	5.....	82,500.....	116,100.....	39.....	.....	129,700
Mill stones and mill furnishing.....	3.....	155,000.....	90,400.....	89.....	.....	217,000
Marble work.....	2.....	8,400.....	4,500.....	18.....	.....	9,500
Machinery, steam engines, etc.....	9.....	250,600.....	84,334.....	372.....	.....	374,520
Pianos, melodeons, etc.....	3.....	201,000.....	66,848.....	150.....	.....	234,800
Scales, platform and counter.....	1.....	5,000.....	8,000.....	20.....	.....	25,000
Stove founding.....	4.....	98,000.....	98,262.....	252.....	.....	204,200
Soap and candles.....	40.....	39,400.....	55,492.....	40.....	.....	132,412
Sash, doors and blinds.....	6.....	69,600.....	47,720.....	83.....	.....	93,350
Saddles and harness.....	25.....	28,860.....	23,190.....	49.....	.....	52,687
Saddlery hardware.....	1.....	30,000.....	21,800.....	40.....	20.....	35,000
Shoemakers' tools.....	1.....	10,000.....	10,000.....	100.....	.....	70,000
Tin, copper, and sheet-iron work.....	26.....	94,500.....	78,395.....	98.....	.....	141,685
Type.....	1.....	20,000.....	40,000.....	25.....	5.....	75,000
Woolen goods.....	7.....	51,600.....	36,750.....	57.....	19.....	70,915
White lead.....	1.....	134,000.....	24,767.....	20.....	.....	63,000
Wine (native).....	1.....	40,000.....	96,000.....	13.....	.....	125,000
Wash boards.....	1.....	15,000.....	10,000.....	20.....	.....	20,000

REMARKS

ON THE MANUFACTURING ESTABLISHMENTS OF BUFFALO.

Agricultural Implements.—Buffalo contains some of the largest and most deservedly celebrated manufactories of agricultural machines in the United States. To no other city in the Union are the farmers of the West so largely indebted as to Buffalo.

Among the most prominent of these establishments in that city are the PITTS AGRICULTURAL WORKS, owned, we believe, by an incorporated company, from the fact that JAMES BRAYLEY, Esq., is announced as

Treasurer. This concern is indebted for its celebrity mainly to the valuable inventions made by John A. Pitts, from whom it derives its name. This gentleman is accredited with having invented the Treading or Endless-Chain Horse Power, which was patented by him in 1836; also the first Chain Pump, and the first Combined Thresher and Separator, patented in 1837, and which continues to be the leading article manufactured at the Pitts Works. Important improvements have been made in the construction of this machine since it was first invented, and now, when propelled by six or eight horses, it will thresh and clean from 300 to 500 bushels of wheat, and from 600 to 1000 bushels of oats per day, and leave the grain deposited in a perfectly neat and clean condition, requiring no handling after it is once fed into the machine until it is ready for the granary. Over five hundred of these machines are now made and sold annually. Recently the manufacturer has invented an attachment for measuring and registering the number of bushels threshed and bagging the grain, which runs from the Fanning Mill into the Elevator, then into the Reservoir and Measure, and then into the Bag, each half bushel being accurately registered and counted. The value of a labor-saving machine like this, to the country, especially at this time, and to the farmers of the West, cannot be computed.

Besides the Thresher and Separator, several other useful and popular machines are made at these works. We may mention the *Double Pinion Horse Powers*, which are remarkable for their strength, durability, and ease in working; *Pitts' Corn and Cob Mill*, and *Rice Hulling machines*. Pitts' Works cover an area of about three acres of ground, including the space devoted to the storage of materials. At times as many as two million feet of lumber, almost exclusively of hard wood, are kept in stock.

The **BUFFALO AGRICULTURAL MACHINE WORKS** are another extensive concern in this branch of manufactures. The proprietors of these works have the control of several patented machines—among others, of *Kirby's American Harvester*, a Buffalo invention. The distinctive feature of this Combined Mower and Reaper is that it will work as well on rough as on smooth ground. This is accomplished by an arrangement by which the finger-bar is independent in its action, or, in other words, rises and falls in following the inequalities of the ground independently of the driving wheel. It is also recommended for its exceeding lightness of draft, and being made of iron it is not affected by exposure to dew, or showers, or sun. This Company have also introduced to the notice of the agricultural community a *Combined Mower and Reaper* which is easily drawn by one horse, and is said to be capable of doing as much work as most machines that require two horses.

The Works are the property of a stock company with a large capital, all paid in, of which GEORGE L. SQUIER is President, LUCIEN HAWLEY Secretary, and JOHN VALENTINE, Superintendent.

R. L. HOWARD'S AGRICULTURAL WORKS, where Ketchum's well-known Mower and Reaper is made, is another celebrated establishment in Buffalo. Over 20,000 of these popular implements have been manufactured and distributed to all parts of the country.

About six years ago Messrs. MILLER, BENNETT & Co. took possession of the old "Vulcan Iron Works" and converted them into an agricultural implement manufactory, more especially for the manufacture of *Parkhurst's Patent Adjustable Mowing and Reaping Machine*, better known as the Buffalo Mower and Reaper.

Brass Founding.—The census officials evidently erred in their return of this branch. Instead of there being but two firms engaged in Brass work in Buffalo, we know of three, and there are probably others—the "Eagle" works, F. COLLIGON & Co. proprietors, who manufacture also Portable Steam Engines and Palmer's Hydraulic Lift and Force Pump; the "Buffalo Brass Foundry," BROWN & RUHLANDT proprietors, who make steam-engine and locomotive Brasswork; and the "Lafayette Brass and Bell Foundry," of which ADAM GOOD has been proprietor for nearly a quarter of a century.

Distilled Liquors.—The largest Distillery in New York State west of Albany, is that of THOMAS CLARK, in Buffalo. His consumption of grain is about 640 bushels a day—which, allowing one bushel to each three gallons of spirits, would make a daily product of 1920 gallons, or over 60 barrels. The still in his establishment, made in New York City by weight, is one of the finest ever constructed. It has the capacity of holding 70 barrels. "Clark's Rye and Monongahela" Whiskies are favorite brands in Western New York and in the Western States. In connection with the Distillery Mr. Clark has an extensive Rectifying establishment, and is the largest manufacturer of Alcohol on the Lakes. The oldest and largest Brewery in Buffalo is that of Moffat, established in 1835.

Iron Rolling and Machinery.—The first Rolling Mill erected in Buffalo was that known as the Buffalo Iron and Nail Works, built in 1846 by Corns & Co., and now owned by PRATT & Co. The main mill is 176 feet long by 140 feet wide, with Nail factory attached, and has eight puddling furnaces, six heating furnaces, and about fifty Nail machines. Besides this main building, there are blacksmith's, millwright and other shops. The works will compare favorably with the best of similar concerns in the country, and are now turning out large quantities of iron and nails of the best quality.

Recently Messrs. Pratt & Co. erected in Buffalo a very fine Blast Furnace, and contemplate the erection of another. The city is indebted to the enterprise of this firm for much of its present importance as a manufacturing centre.

In 1862 another large Rolling Mill was built in connection with the Blast Furnaces erected by Palmer & Wadsworth and Warren & Thompson, whose establishments have been consolidated under the title of the UNION IRON WORKS. The furnaces now in operation in Buffalo or in course of erection will have a capacity sufficient to produce 50,000 tons of Pig Iron annually. The ores are obtained from Northern Michigan.

The "Niagara Steam Forge," built by Charles Delaney in 1850, and now owned by HENRY CHILDS, is fully equipped for fabricating masses of wrought iron. This establishment has the capacity of turning out \$200,000 worth of work annually. Another forge is now in the course of erection in Buffalo.

The manufacture of Machinery and Steam Engines is also largely carried on in Buffalo, much more so than the returns of the census-takers would lead one to suppose. The "Shepard Iron Works," for instance, have a capital of \$125,000, and their annual product must amount to \$200,000. The buildings of the works were erected in 1847, and consist of a brick foundry and machine shop 120 feet square, and a boiler shop adjoining 100 feet square. Here, in 1850, Mr. JOHN D. SHEPARD built the machinery for the propeller "Buffalo," and attached a screw propeller wheel of 16 feet in diameter, the shaft just touching the water when the wheel was loaded to ten feet. Although a failure was confidently and generally predicted, the experiment was entirely successful, and the reputation of the elevated screw propeller wheel established. Here too have been built several of the very best steam engines on the Lakes, and the boilers of some of the largest passenger boats, as for instance those of the "Southern Michigan," "Northern Indiana," "Crescent City," "Queen of the West," "St. Lawrence," and others. In addition to the manufacture of machinery for steamboats and propellers, the Shepard Iron Works make all kinds used in Saw and Flouring mills.

The "Buffalo Furnace," George W. Tift owner, and J. N. Tift & Co. lessees, and the Eagle Iron Works of Dunbar & Howell, are also extensively engaged in building Engines and Boilers; while MASON & BIDWELL have every facility for building vessels of the largest size. This firm and their predecessors have built Steamers, Propellers, Brigs and Schooners that have an aggregate tonnage of at least 50,000 tons. Some of the finest craft on the Lakes, and strongest steamers ever constructed, were built at the shipyards of this firm.

Leather.—Buffalo has peculiar advantages for this manufacture, and has more capital invested in it than in any other branch. The Tanneries of BUSH & HOWARD and AARON RUMSEY & Co. are the largest in Western New York.

Mill Stones and Mill Furnishing.—The establishments in Buffalo for furnishing mills are probably the largest of their class in the country. At JOHN T. NOYE's Mill Stone Manufactory, for instance, a person who desires to construct and equip a Mill, can obtain every thing, from a steam engine to the bolting cloths. He has simply to send a statement and diagram of the situation, size desired, and other particulars, and the entire mill, except the buildings (and the designs for these are frequently included), will be furnished. We know of no other establishment of the kind so complete in all its appointments.

Mr. Noye is also distinguished as an inventor as well as a manufacturer. His *Centrifugal Feeding Portable Mill* has effected a revolution in the ideas of millers as to the relative value of large and small stones. He commenced the manufacture in 1852, and such were the prejudices of old millers against small stones, that the sales during the first year did not exceed a half dozen mills. One after another, however, was induced to test the experiment, and found the results eminently satisfactory. Brown & Smead, at their steam mill in Portage, N. Y., found that by means of Mr. Noye's improvement they could make a hundred barrels of flour with only one and a half cords of wood; and O. Whitney & Co. at their large steam mill in Detroit did the same work with one ton of bituminous coal. What was then an experiment has now become a fixed fact, namely, that portable mills with the centrifugal feeding principle can be run (say three feet stones) with an economy of power over large stones of from twenty-five to thirty-three per cent.; and the flour, from its superior liveliness, is preferred by bakers.

Mr. Noye is also the inventor of an improved Bolting Reel, a Pressure Mill, a Plantation Corn Mill, a Smut Machine and Separator, a Centre Vent Turbine Water Wheel, a Chinese Sugar-Cane Mill and Sugar Mill Horse-Power, and other contrivances that exhibit the fertility of his genius and his skill in the adaptation of mechanics to useful purposes.

ZADOCK G. ALLEN & Co. are another firm in Buffalo extensively engaged in making Burr Millstones and furnishing Mill Machinery. Mr. Allen has had a long experience both as a millwright and a manufacturer. He is also an inventor, and his *Improved Cast Iron Water Wheel* is believed to be the best now in use. It is cast whole, and finished in a lathe by boring the eye and turning the rim, and its quick and steady motion adapt it for milling purposes, as the stone can be

driven to the proper speed with but little gearing. His *Combination Smut Machine* and *Improved Self-Acting Flour Packer* are labor-saving machines that are also deservedly appreciated.

E. P. BUTLER, the other manufacturer, is the successor of Weston, Cogswell & Co. His Mills are peculiar in the novel method of hanging the stones, Mr. Butler having a patent upon the iron work employed for that purpose.

Pianos, Melodeons, etc.—Instead of there being but three establishments engaged in the manufacture of Musical Instruments in Buffalo, as the census takers have reported, there were four Piano manufactories in operation in 1859–60, those of A. & J. KEOGH, H. UTLEY, FROBOES & Co., and KURTZMAN & LINGE. Besides these, there was the Flute Manufactory of SHEPPARD & COTTIER; the Organ Manufactory of G. HOUSE; and the Melodeon Manufactory of GEORGE A. PRINCE & Co.; that usually employs 200 hands, and turns out 80 instruments per week, ranging in price from \$35 to \$350. This is one of the largest establishments of its class in the United States. The manufactory is built in the form of an L, five stories in height, and has a frontage of 120 feet on two streets, and 40 feet in breadth. Nearly 30,000 instruments have been sent out from this manufactory to all parts of the country.

Platform Scales.—The manufacture of Platform Scales in Buffalo was in its infancy in 1860. In September of that year Mr. JOHN WEEKS, formerly Agent of the Messrs. Fairbanks, succeeded in organizing the BUFFALO SCALE WORKS COMPANY, with Mr. EDWARD S. RICH, a gentleman of capital, as its President; and the business, now established on a solid foundation, will probably become an extensive one.

Stove Founding.—We are confident that this branch of manufactures is much understated in the census returns. The works of one firm, Messrs. JEWETT & ROOT, have the capacity of melting 40 tons of iron daily, and turning out 1500 Stoves per week. They alone usually employ about 400 men. Their works, in connection with the Eagle Iron Company's manufactory, owned in part by the same proprietors, occupy an entire block. The principal moulding room is 200 feet in length by 150 feet in width, and contains two cupola furnaces; and the other is 200 by 100 feet, and has one cupola. The firm has been established since 1835.

Messrs. WOOD, HUBBELL & Co. are another firm extensively engaged in the manufacture of Stoves. They make over a hundred different kinds and sizes.

Wine.—We presume the establishment alluded to in the census returns as manufacturing Native Wine is that of TURNER BROTHERS, who

make *Turner's Ginger Wine*, of which over 300,000 gallons have been sold in a single year. They make 23 different kinds of Wines and Cordials, and furnish employment to a large number of persons during a portion of the year in gathering fruits and berries, of which the consumption is enormous. In connection with the Buffalo house, which has been established about 18 years, this firm have a manufactory in the city of New York, and another in San Francisco. Their wines are a staple article, and are shipped largely to Europe, the West Indies, and South America.

White Lead.—There are two White Lead factories in Buffalo, those of THOMPSON & Co., founded in 1843, and the Niagara White Lead Company, established in 1852—G. T. WILLIAMS, President, and S. G. CORNELL, Secretary. Each of these makes about 1200 tons of White Lead per annum, and the aggregate product, instead of being \$63,000, as returned by the census-takers, is about \$300,000.

Buffalo has for several years contained, in the establishment of F. S. PEASE, one of the largest and most noteworthy Oil manufactories in the Union, but recently important additions have been made to this branch of manufactures by the erection of several establishments for Refining crude Petroleum. We believe there are no less than eleven of these Oil Refineries now in operation in Buffalo.